

The Role of 21st Century Skills in Two Rural Regional Areas of Public Education

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Abstract

Budgetary shortfalls and excessive layoffs have left public schools with a deficiency of professional innovation as well as modern theory and practice. It is imperative that educators identify the exemplary school systems that are engaging students and adults in 21st century education, and broadcast those patterns of success to schools in need of reform. These researchers presented comparative, qualitative case studies on engagement in work in two regional areas in Suffolk County, New York. The purpose of these studies was to investigate how school systems and educators engage students and adults in 21st century education.

Public Education

Over the course of the past few decades, technology has shaped the way people interact, work, learn, retrieve, and disperse information. The advent of the 21st century includes new forms of knowledge and information, requiring tools and skills previously unseen by generations of learners. New tools are used for expansion of knowledge rather than replacement, and 21st century schools must equip students with these skills in order for them to be competitive in the new global workforce. Twenty-first century skills have altered the landscape of education, in that they demand competent, knowledge-based leadership, which values the role of knowledge creation.

Historically, public schools have not fit the criteria outlined in constructivist models; they have been determined to be predominantly technical in nature. According to Smith (2008), technical schools are characterized by limited collaboration with an emphasis on individual isolation, focus on and enforcement of official rules and proper behavior, a restricted public agenda, and unrelated school functions both inside and outside school. These schools are often noted as traditional in nature. Constructivist schools are characterized by collaboration and reflection with a focus on the development of knowledge by students and adults, evaluations professionally monitored toward growth, and performance-driven school activities. Recent

standards reform was designed to continue this type of schooling. However, changing needs in society have led to the implementation of 21st century skills to provide opportunities to engage students in learning.

Statement of the Problem

President Barack Obama launched the Race to the Top Campaign "to improve schools by holding students to higher standards, paying bonuses to teachers whose students excel [specifically] with prize money from a stimulus fund of at least \$4 billion, [of the] \$100 billion [set] aside for education in the stimulus bill" (Clark, 2010). According to *The New York Times*, in the first round of competition for federal funds, New York finished second to last in the competitive grant known as Race to the Top, leaving the State with an estimated \$9 billion budget shortfall, laying off as many as 8,500 teachers in certain domains (Medina, 2010). This loss of teachers yields a shortage of professional innovation, particularly modern theories and practices that recent graduates would supply to the classrooms of the 21st century. As Gibson (2004) states, technology in the classroom is essential to student learning through enhanced teaching. Without the integration of technology, students may be ill equipped in academic and professional endeavors. The potential long-term ramifications of on-the-job success are directly connected to the skills attained in school.

Purpose

The purpose of this research was to investigate how educators and school systems engaged school adults and students in 21st century education. Using Smith's Advocacy Design Center (ADC) (1990) model, investigators conducted interviews, observations, focus groups, and collected artifacts related to school practices that best prepared students for the 21st century. Research examined the level of engagement in patterns of organization, governance, and accountability related to adult work and the patterns envisioned for 21st century schools.

Methods

Two qualitative case studies were conducted and subsequently published investigating how educators and school systems engage school adults and students in 21st century education. Focusing on two regional districts on Long Island, these researchers examined the levels of engagement in patterns of organization, governance, and accountability in relation to adult work and the patterns envisioned for 21st century schools. The methodology used in these studies involved conducting site visits to the selected schools in each regional district as individual and parallel case studies. Each researcher reported on one regional district, while serving as an assistant researcher in the second comparable regional district for the parallel study.

Setting

These researchers randomly chose four schools in each of the two regional districts. A regional district is not a designated government unit; it refers to a cluster of school districts in a specific geographic location. The leaders in these school districts meet several times each year as a region. It is important to note that each of these school districts has its own superintendent and is governed by an independent Board of Education. The regional area of the schools discussed in these studies is Long Island, New York. The schools and research participants are anonymous.

Analytic Framework

The framework for this study was adapted from "A Case Study of How Four Presumed 21st Century Schools Utilize Information Systems to Engage Students and Adults in Work," by F. Simmons, 2011. These researchers used the framework to ascertain the instruction, organization, governance, and accountability (IOGA) systems in each school. According to Simmons (2011), "Instruction refers to the key notions from the Popkewitz et al. explanation of three different school cultures; namely, what it means to know and work in a particular school" (p. 66). These researchers analyzed the IOGA of each school to determine the degree to which each school supported 21st century skills. Steinberg's (1998) 18 design questions were used as a component of the framework to determine if project-based learning addressed the essential elements of authenticity, rigor, applied learning, active exploration, adult relationships, and assessment practices. Finally, the culture of each school (technical, illusory, and/or constructivist) was determined.

Research Questions

1. What instructional pattern, 21st century-oriented constructivist or 20th century-oriented technical, do teachers report as being predominant in the instructional system in the district?

2. What patterns of organization, 21st century-oriented constructivist, collaborative, or inclusive or 20th century-oriented traditional, are predominant in the district?
3. What patterns of governance, 21st century-oriented constructivist, collaborative, or inclusive or 20th century-oriented traditional, are predominant in the district?
4. What patterns of accountability, 21st century-oriented constructivist, collaborative, or inclusive or 20th century-oriented traditional, are predominant in the district?

Findings

The data collected show a discrepancy in understanding of 20th and 21st century learning. Participants identified 21st century skills to be more student-centered with increased emphasis on using computers, strengthening skills such as problem solving, collaboration, effective utilization of content, and information creation. Others believe that there are limited differences in learning because the integration of skills, interdisciplinary assignments, and group work were found to be ordinary and executed through traditional delivery methods, i.e. textbooks, workbooks, worksheets, paper and pencil, etc. The use of technology was evidenced as a tool rather than an instrument of creation and innovation. Although most schools were equipped with white boards, most were used traditionally with limited evidence of collaboration and interactive applications. The majority of participants felt hindered from integrative and innovative instruction due to state and federal mandates coupled with an increased focus on testing. The organization of each school was identified as traditional in nature. Students follow a bell schedule and rotate from class to class throughout the day. Student scheduling is long and tedious with limitations to course offerings and school focus. Classrooms were identified as teacher-centered and driven. The general flow was academic and interrupted by various activities throughout the day, week, and year. The teacher is located at the front or center of the room with student workspace (desks or tables) in rows facing the teacher. Although various group and project-based learning initiatives were noted, data show these were conducted by shifting the traditional setting to accommodate the needs of the project or assignment, not the students. Data revealed some collaboration within disciplines and limited cross-curricular alignment.

Governance in both regional districts were evidenced as top-down authority. The building principal(s) worked with the superintendent(s) to identify school initiatives at the discretion of the school board(s). The implementation of the initiatives was the responsibility of the building leader. Data revealed there was minimal collaboration with staff and stakeholders.

New accountability measures were implemented in 2011-2012 for teachers and school building leaders under Education Law §3012-c and the Commissioner's regulations.

The purpose of this evaluation system was to ensure schools and classrooms are equipped with effective leaders and teachers. Under this system, effective scale ratings are determined through state assessment scores, comparable measures of growth, locally selected methods, and community involvement.

Data evidenced the schools as predominantly technical in nature with developing constructivist characteristics. Throughout the research, "there are several indications of student-centered learning and the attempt toward the promotion of 21st century skills," however several traditional components are still in place (McDermott, 2013). Limited amounts of freedom were evidenced in the instruction, organization, governance, and accountability of these regional districts. The structure was therefore found to be traditional in nature.

Conclusions

Over the course of recent times, standard-based reform has entered mainstream culture at a rapid speed. While carefully planned and calculated change is integral to any institution, a reform of this magnitude and momentum indelibly and irrevocably alters the communities of our schools as it directly impacts vision and leadership, and a district's foreseeable or unforeseeable scholarship. This "political pesticide of teacher-proof standardization" has repercussions that have proven deleterious to students, teachers, and virtually all other stakeholders (Hargreaves & Fink, 2006, p. 14). Several other factors implore the need for competent administration and leadership. School building leadership must respond to the increasing diversity of students' cultural, linguistic, economic, and learning differences to properly implement the common core initiatives, curricular expectations, achievement thresholds, program requirements, and state and national mandates.

In addition to the aforementioned tasks, teachers and stakeholders in general will "need new tools including first-hand knowledge of the 21st century high performance workplaces" (<http://www.p21.org>, Partnership for 21st Century Skills, 2009). Consequently, it is imperative that the leaders of school communities assess the current climate of pedagogy, specifically the mechanics of change, its adjoining mandates, and the ramifications of an otherwise invaluable education.

Historically, standardization has been prevalent since the mid 1990s, long before the time of No Child Left Behind (Hargreaves & Fink, 2006). It was at the conclusion of this pre-millennium period, however, that standards-reform underwent an informal renovation. Hargreaves and Fink (2006) refer to the concept of narrowing the curriculum and destroying classroom creativity, maintaining that much of the knowledge now taught in our schools is strictly ephemeral; desultory facts and figures that are retained for exams and soon forgotten thereafter. Many educators would venture to say that this current form of teaching is not teaching at all, but simply testing.

Crockett et al., (2011) explain how students need to move past information recall toward interpretation and application because digital content is growing in quantity and complexity. Students will need to apply higher-order thinking and cognitive skills to real-world, real-life, and real-time tasks (Crockett et al., 2011).

Only recently have policymakers started to view this current period in education as a foundation for greater learning. Maurizio and Wilson (2004) note, "The Partnership [for 21st Century Skills] believes that states can use the current convergence of the federal requirements and the nationwide public and private focus on education to craft visionary state educational policies. Such policies would integrate a suite of 21st century knowledge and skills into education" (p. 28).

Modern technologies are changing the way individuals produce, consume, communicate, and think, in addition to having a profound impact on the social, political, and economic realms of society. According to Crockett et al., (2011), schools were designed for a time of agriculture and manufacturing where over 75% of the population worked. Today, this same percentage of the workforce is working in creative- and service-class professions. This explosive growth of change and innovation is leading into a new era of education for the 21st century. According to Pink (2005), "we are entering a new age animated by a different form of thinking and a new approach to life" (p. 2).

As society enters this new age, replete with new forms of thinking and a focus on global competition, leaders must recognize the shift, and prepare youth for a future where success is measured by the ability to critically think, analyze, investigate, and innovate competitively.

Conclusions of Research

The schools examined within the regional districts revealed an attempt to engage students in work which links them to the adult world. It was determined that these schools did not meet the criteria for Smith's (1990) framework of the ADC model, the level of engagement in the patterns of organization, governance, and accountability in relation to adult work and the patterns envisioned for 21st century schools, and as a result are not considered 21st century schools. Although the responses of participants through interviews and focus groups were more constructivist in nature with an emphasis on student-centered learning, there were many traditional elements at the core of the systems which prevented them from fully embracing the notion of 21st century schooling. The schools reported to an outside authority, which set forth a system of mandates and initiatives. There was a leadership hierarchy and schools were held to specific obligations and standards, which were primary indications of a technical school culture.

Data collected in both regional areas were identified by technical schools of a traditional nature with developing constructivist characteristics. Although the majority of the participants attempted to engage students in creating environments which focused on critical thinking, problem solving, technological proficiency, depth of knowledge, and project-based work, these researchers determined they did not meet the criteria of the framework. These researchers found respondents in each of the regional areas to feel confident among constituents as they reflected individual thought processes when answering questions. In some instances, participants used common answers, but in others they built on each other's responses and they often used the same terminology when responding to questions. In this type of inquiry, this characteristic is inherent and assisted these researchers in determining the type of culture in each school and regional area.

Although there were several indications of student-centered learning and the attempt toward the promotion of 21st century skills, there were traditional tenets still in place. There were limited amounts of freedom in instruction, organization, governance, and assessment due to both the requirements of state and national mandates. These mandates require a top-down type of structure for each of the domains researched. This structure was traditional and did not reflect those of a constructivist nature.

In summary, the schools were identified as predominantly 20th century traditional/technical across the domains of instruction, organization, governance, and accountability, and were cited as deficient in the areas of project-based learning and 21st century skills, as outlined in Steinberg's (1998) criteria and the Partnership for 21st Century Skills.

Implications for Change

Schools of today must be the change agents, preparing future generations for jobs of tomorrow. Educational facilities on a global scale are charged with the need to educate children to be members of a sophisticated workforce, well-versed in a multitude of skills and situated in a world beyond school. Students must be ready to contact a designer in Dubai for something being made in Mexico and shipped by a service in Australia. School leaders and educators must investigate how to blend traditional and contemporary modes of communication in a modern context. Interaction between schools, businesses, leaders of government, and other entities needs to be fluid and seamless. Students of today were born into a world of technology; they are digital natives, and the system of education is not accommodating or understanding their needs. The current system of education is deficient in preparing our students for these essential life skills. There needs to be a greater emphasis on new and innovative technology and how learners interact with these applications in a millennial environment.

Although attempts have been made to accommodate for 21st century skills, the resiliency of existing school culture, state mandates, and testing criterion limits these skills from being a sustainable priority. Knowledge of 21st century skills and project-based learning are becoming more ubiquitous throughout these school systems, yet further allowances must be made in order to embrace these concepts as a conduit for a formidable 21st century education. District and school leaders in conjunction with teachers, community members and staff only increase 21st century skills when they have a clear understanding of what these skills are, how they effectively impact student learning both today and in the future, and how students will apply this knowledge to real life situations. Educators must provide opportunities and access for students to interact, communicate, and partner with their peers, mentors, and other professionals through various cross-curricular, project-based, and digital-age literacy instructional models. Successful practices of 21st century skills will allow students to become highly productive, creative, culturally sensitive, collaborative, adaptive, problem solving, thought inspired citizens of our global society.

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